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(54) Box with retention and protection element for a jar.

(57) A box with elongate flaps (9,10) folded within the box interior to act as a support and protection element for a jar or the like housed therein.

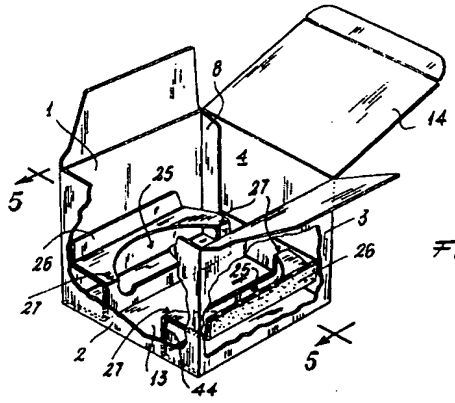

Fig. 4

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This invention relates to a box with a retention and protection element for a jar housed in the box.

Boxes of cardboard or other material are often used for housing jars or bottles containing the most diverse products, such as creams, ointments, medicaments etc.

In many cases the jars have to be securely retained and protected against impact and the like. In this case the jar is placed in a cavity or seat provided in a block of soft material, such as expanded polystyrene, which is inserted into the box. It is also known to insert into the box a supplementary structure, sometimes formed of the same material as the box, its purpose being to maintain the jar spaced from the side and/or base walls of the box.

It is apparent that the use of a structure formed separately from the box and arranged to protect the jar in its box is costly and requires the use of special machines for inserting the structure into the box and then to house the jar inside the structure.

The main object of the present invention is to provide a box in the form of a single piece of cardboard or other material, the box being able to retain and effectively protect a jar within the box and being of low cost and easy assembly at the moment of making up the package.

This and further objects are attained by a box with at least one retention and protection element for a jar or the like, formed from a sheet of flexible material, in particular cardboard, provided with four consecutive main panels separated from each other by parallel creasing lines, with flaps and, for forming the two ends of the box, with two respective closure panels projecting from the free ends of the main panels and separated from them by creasing lines perpendicular to those separating the panels from each other, characterised in that from two separate main panels between which there is interposed a further main panel there project from at least one and the same side of the panels two elongate flaps in each of which there are provided two supplementary creasing lines parallel to the creasing line which separates said flap from the main panel from which it projects, in each elongate flap there being provided an intermediate creasing line between said supplementary creasing lines and parallel to them, within the box formed from said cardboard sheet said two elongate flaps being folded over along their respective creasing lines, with one of their portions being fixed to the interior of the main panel from which said flap projects to form a support for supporting a jar, which is kept raised from the adjacent end of the box.

Preferably, said elongate flaps each extend to form an appendix which can be folded over about a further creasing line to be superposed on the remaining part of said flap within the finished box, in this appendix there being provided creasing lines which are substantially superposed on creasing lines of the elongate flaps when said appendices have been folded over onto the respective elongate flaps.

Again preferably, in each of said elongate flaps there is provided a profiled aperture located between said supplementary creasing lines of said flap, said intermediate creasing lines intersecting the respective apertures which form a housing for said jar, which is retained raised from the adjacent end of the box and spaced from the side walls of said box.

The structure and characteristics of the box will be more apparent from the description of two preferred embodiments thereof given hereinafter by way of non-limiting example with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a punched cardboard sheet usable for forming the box;

Figure 2 shows the cardboard sheet of Figure 1 partly folded in a first stage of assembly;

Figure 3 shows the cardboard sheet of Figure 2 in a subsequent stage of assembly;

Figure 4 is a perspective view of the formed box with its lid open, a portion of the box walls having been removed to show the box interior;

Figure 5 is a cross-section through the finished closed box on the line 5-5 of Figure 4;

Figure 6 is a plan view of a different cardboard sheet usable for forming a different embodiment of the box;

Figure 7 shows the cardboard sheet of Figure 6, but with some of its portions folded, in intermediate stages in the formation of the box; and

Figure 8 is a cross-section through the box obtained in this manner, shown closed and housing a bottle.

With reference firstly to Figure 1, this shows a plan view of a cardboard sheet comprising four consecutive main panels 1, 2, 3, 4 separated from each other by parallel creasing lines 5, 6, 7 (from the panel 1 there projects a flap 8 separated from the panel 1 by a creasing line parallel to the lines 5-7). From the free ends of the main panels there project flaps 9, 10, 11, 12 and, respectively, closure panels 13, 14 provided with foldable edges 15, 16, said flaps and closure panels being separated from the respective main panels by creasing lines 17-21 perpendicular to the creasing lines 5-7.

To form the box the various panels are folded about their respective creasing lines and the flap 8 is glued to the inner surface of the panel 4 onto the region indicated by the reference numeral 22 in Figure 1.

As can be seen from the drawings, in each of the two flaps 9, 10 there are provided two sup-

plementary creasing lines 23, 24 parallel to the creasing lines 17, 18, between said supplementary creasing lines 23, 24 there being provided in each flap a profiled aperture 25, that edge thereof facing the free end 26 of the respective flap being of circular arc profile, ie complementary to that of the outer lateral portion of a jar to be contained and protected within the box, the jar being assumed to be of circular cross-section.

Finally it can be seen that in each flap 9, 10 there is provided a supplementary creasing line 27 (parallel to the lines 23, 24) which intersects the respective profiled aperture 25.

From the flaps 9 and 10 there extend appendices 40, 41 in which there are provided supplementary profiled apertures 42 (of shape and dimensions substantially equal to those of the apertures 25) intersected by creasing lines 43 which delimit a free end edge 44 of each appendix separated from the flap from which it extends by a creasing line 45. A further creasing line 46 is also provided which (with the creasing lines 43 and 45) delimits appendix portions indicated by the reference numerals 47 and 48.

To form the box from the cardboard sheet heretofore described, the appendices 41, 42 are firstly folded about the respective creasing lines 45 so that they become superposed on the respective flap from which they extend, as shown in the bottom left part of Figure 2. It can be seen that when in this condition the apertures 42 are substantially superposed on the respective apertures 25, and the creasing lines 34 and 46 are superposed on the creasing lines 23 and 24 respectively.

Following this (as can be seen in the lower right part of Figure 2), the flaps 9, 10 are folded about the creasing lines 23 and the portions 47 of the appendices (which are superposed on the flap portions 26) are fixed (by gluing) onto the regions indicated by the reference numerals 30 and 31 (Figure 1) on the inside of the respective main panels 1, 3. At the same time as (or following) said fixing of the flaps onto the regions 30, 31 of the panels 1, 3, glue can be applied for fixing the flap 8 onto the region 22 of the panel 4, after the cardboard sheet has been folded back on itself about the creasing lines 5 and 7 (Figure 3).

The initial assembly of the box is thus terminated, and packs of open boxes such as that shown in Figure 3 can be packaged and despatched to the final box user.

When the user receives the pack of flat preformed boxes with their ends open (Figure 3), he opens the box by pressing against the creasing lines 5 and 7 to cause the panels 1-4 to assume a quadrangular arrangement with right angled corners. By then pressing against the creasing lines 23 he makes the flaps 9, 10 assume an "open" arrangement (Figures 4 and 5) in which they are retained by the bottom end panel 13 when it is closed in the traditional manner. In this open arrangement, the apertures 25, 42 (superposed on each other) face towards the interior of the box, one facing the other to define a seat which can house and securely retain a jar or bottle 140 (shown by dashed lines in Figure 5), the base of which rests on the rectilinear edge of each of the two apertures.

As a result the jar 140 is not only securely retained within the box but is protected from impact and damage by being kept spaced from the lateral and end walls of the box by the flaps 9, 10 onto which the respective appendices 40, 41 have been folded back and superposed. It follows from this structure that the thickness of the cardboard at the seat housing the bottle is greatly reinforced by the presence of the appendices 40, 41 superposed on the flaps 9, 10, so providing considerable and effective low-cost protection for the bottle contained in the box.

It should also be noted that the aforedescribed box can be made up at high speed with traditional machines and does not require the use of any supplementary element for retaining and protecting the jar within the box.

In the illustrated box a seat for the jar is provided only in correspondence with the box base, however it is apparent that a similar seat can also be provided in correspondence with the box lid.

The box embodiment shown in Figures 6 to 8 is similar to the already described box, and differs from it only by the different shape of the flaps which are to form the seat for the bottle or jar to be housed in the box. As many as possible of the reference numerals already shown in Figures 1 to 5 will be used for brevity of description.

As can be seen from the drawing, in this modified embodiment of the box the appendices 40 and 41 on the flaps 9, 10 are not provided.

Instead, in each flap, in a region lying between the creasing lines which separate these flaps from the respective main panels and the creasing lines on the flaps themselves there is provided a substantially C-shaped cut, the ends of which terminate at the creasing lines 23 to define a tab 50 which can be folded back about said creasing line 23 to be superposed on the adjacent flap portion lying between the creasing lines 23, 27, as can be clearly seen from the lower left part of Figure 7.

It should be noted that the shape and dimensions of the tabs 50 are such that when these have been folded back in the stated manner they expose a hole 51 which leaves the aperture 25 completely free when the flap is subsequently folded back onto itself about the creasing line 23 (lower right

part of Figure 7).

In addition, in the box when shaped and finished, the tabs 50 lie to the side of those flap portions (in correspondence with the apertures forming the housing seats for the bottles) which are adjacent and perpendicular to the bottom end wall 13 of the box and intended to support the bottle weight, so considerably strengthening the structure of the box at said seats.

The described boxes comprise apertures 25, 42, 51 (for defining a housing seat for the jar) and appendices 40, 41 extending from the respective flaps (for strengthening those flap portions which are to support the weight of the bottle when housed in the box).

It is however to be understood that while the presence of said appendices 40, 41 is preferred (especially if the bottles are relatively heavy) but is not strictly necessary. In the same manner the presence of the apertures 25, 42, 51 is not necessary if the bottle is merely to be isolated from the bottom wall of the box.

In any event it is apparent that the aforedescribed boxes are of low production cost, can be made up at high speed using traditional machines and do not require the use of any supplementary element for retaining and protecting the jar within the boxes.

The box embodiments described with reference to the drawings comprise elongate flaps only in correspondence with one of the box openings, namely at its lower end. It is however apparent that similar flaps can also be provided in correspondence with the top or lid of the box, so that a jar housed within it can be securely retained and protected at both ends.

Claims

1. A box with at least one retention and protection element for a jar or the like, formed from a sheet of flexible material, in particular cardboard, provided with four consecutive main panels (1-4) separated from each other by parallel creasing lines (5-7), with flaps (9-12) and, for forming the two ends of the box, with two respective closure panels (13-14) projecting from the free ends of the main panels (1-4) and separated from them by creasing lines (17-21) perpendicular to those (5-7) separating the panels from each other, characterised in that from two separate main panels (1-3) between which there is interposed a further main panel (2) there project from at least one and the same side of the panels two elongate flaps (9, 10) in each of which there are provided two supplementary creasing lines (23, 24; 46) parallel to the creasing line (17, 18) which separates said flap (9, 10) from the main panel (1, 3) from which it projects, in each elongate flap (9, 10) there being provided an intermediate creasing line (27; 43) between said supplementary creasing lines (23, 24; 46) and parallel to them, within the box formed from said cardboard sheet said two elongate flaps (9, 10) being folded over along their respective creasing lines (17,18;23,24;27;43, 45, 47) with one of their portions (26, 47) being fixed to the interior of the main panel (1, 3) from which said flap (9, 10) projects to form a supporto for supporting a jar (140), which is kept raised from the adjacent end of the box.

2. A box as claimed in claim 1, characterised in that said elongate flaps (9, 10) each extend to form an appendix (40, 41) which can be folded over about a further creasing line (45) to be superposed on the remaining part of said flap within the finished box, in this appendix (40, 41) there being provided creasing lines (43, 46) which are substantially superposed on creasing lines (23, 24) of the elongate flaps (9, 10) when said appendices (40, 41) have been folded over onto the respective elongate flaps (9, 10).

3. A box as claimed in claim 1, characterised in that in each of said elongate flaps (9, 10; 40,41) there is provided a profiled aperture (25, 42) located between said supplementary creasing lines (23, 24; 46) of said flap, said intermediate creasing lines (27, 43) intersecting the respective aperture (25, 42) which form a housing for said jar (140) which is retained raised from the adjacent end (13) of the box and spaced from the side walls (1-4) of said box.

4. A box as claimed in claims 2 and 3, characterised in that in said appendices (40, 41) of said elongate flaps (9, 10) there is provided a supplementary profiled aperture (42) substantially superimposable on the aperture provided in the respective flap (9, 10) when said appendices (40, 41) are folded over onto the respective elongate flaps (9, 10).

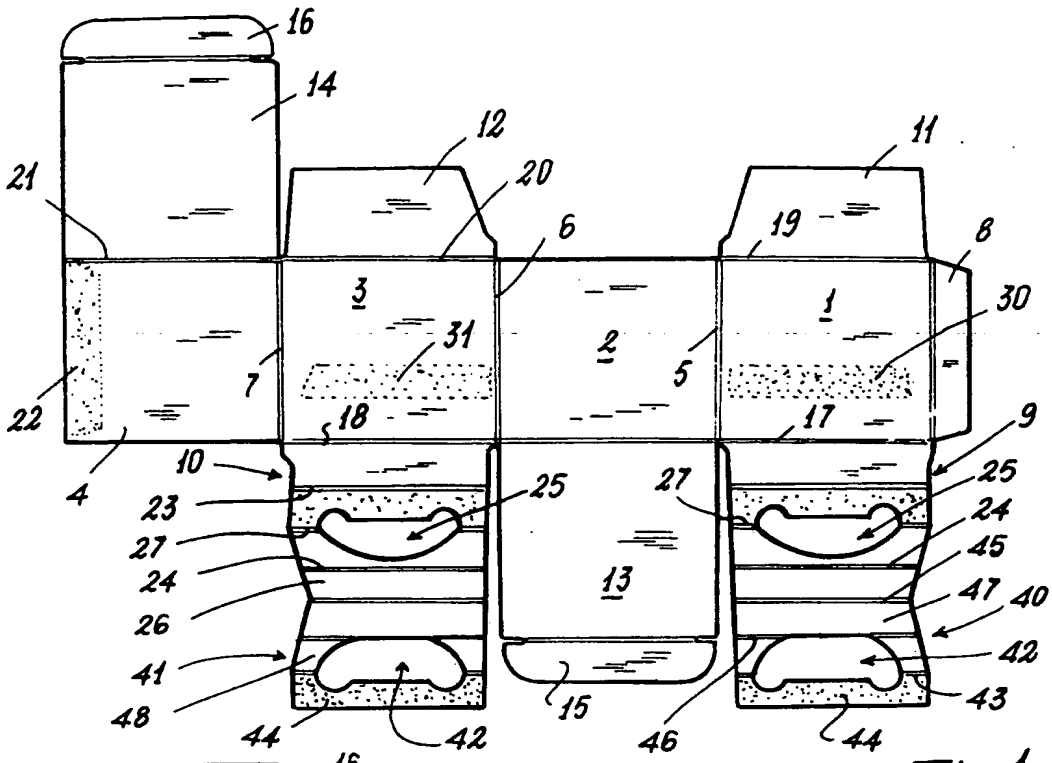
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Fig. 1

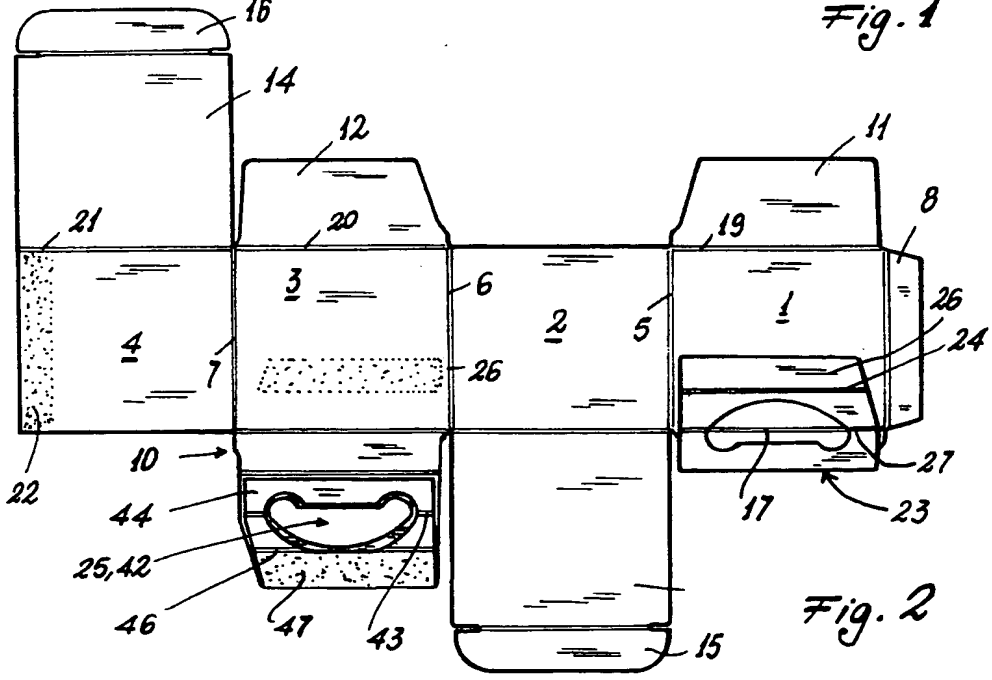
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Fig. 2

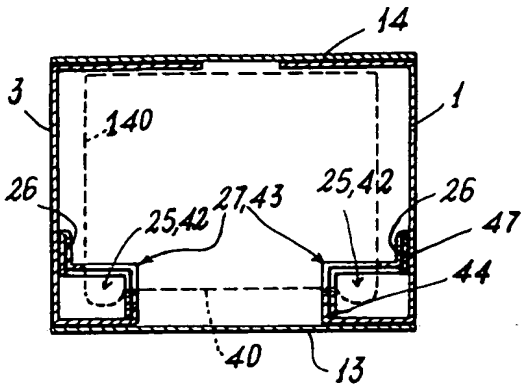

Fig. 5

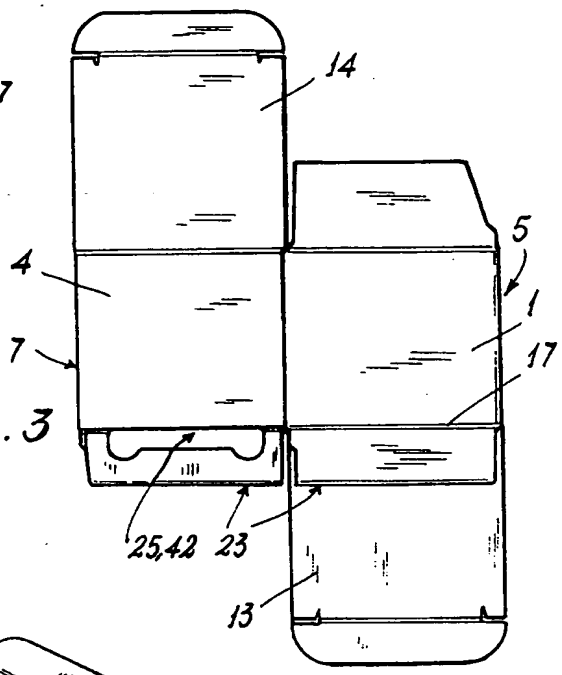

Fig. 3

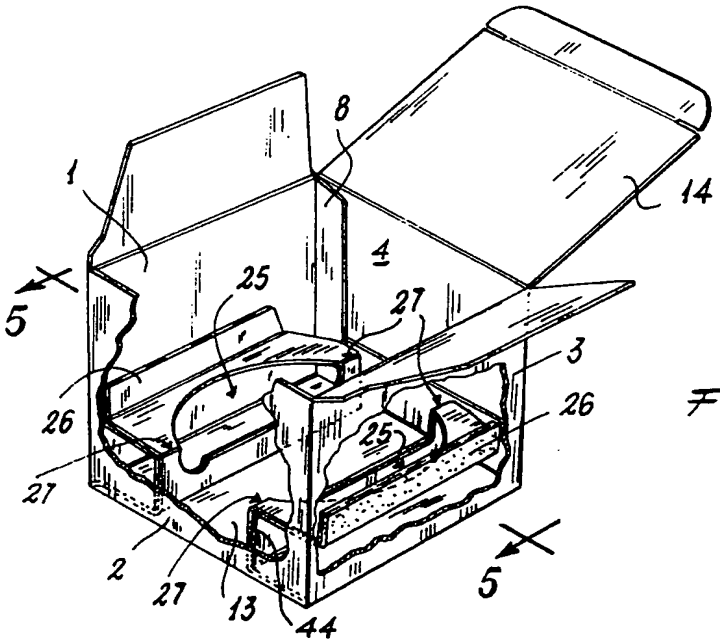

Fig. 4

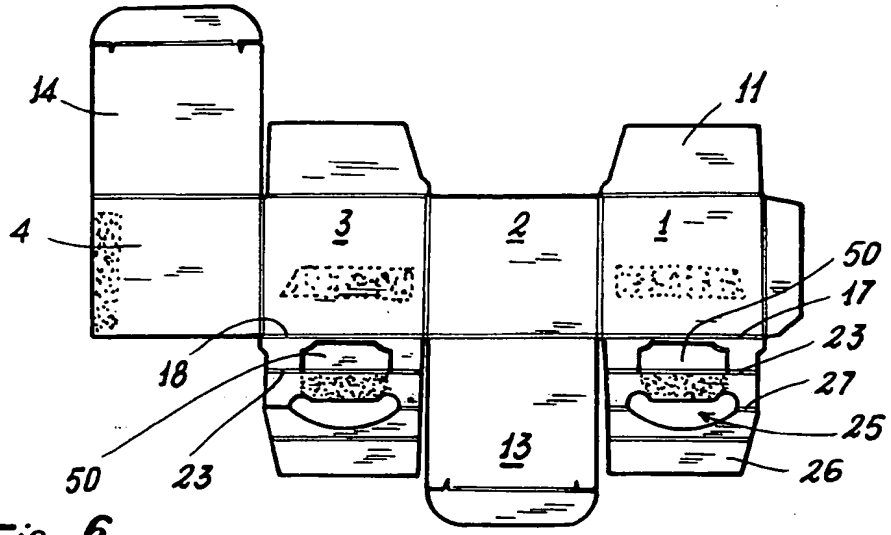

Fig. 6

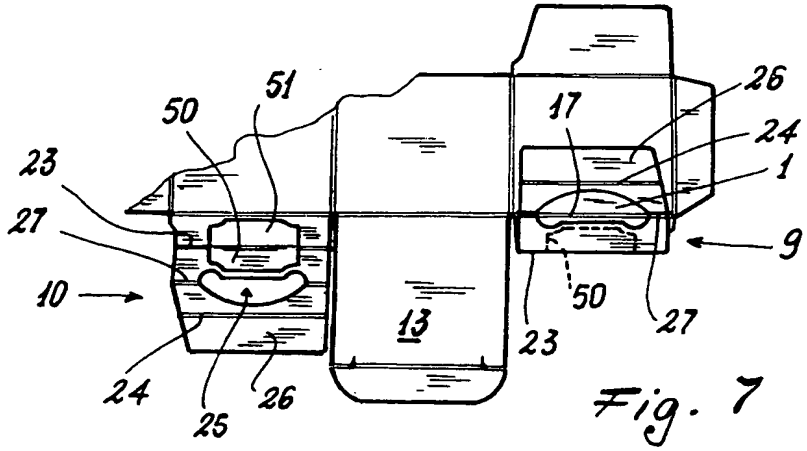

Fig. 7

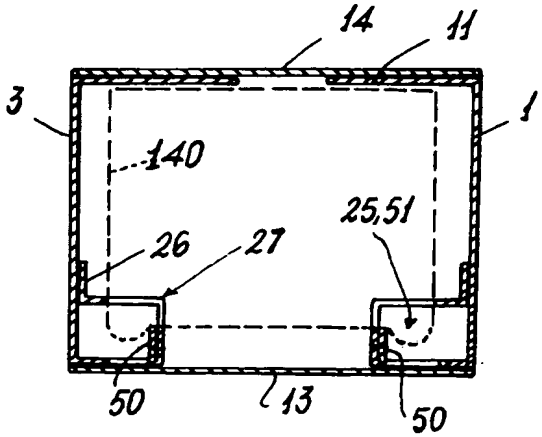

Fig. 8

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 11 3939

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US-A-5 145 070 (PALLETT ET AL.) * the whole document *	1,3	B65D5/50
X	GB-A-2 154 213 (WADDINGTONS LTD.) * the whole document *	1,3	
A	US-A-3 438 482 (HAMILTON) * the whole document *	1,3	
A	US-A-3 158 307 (MAYER) * the whole document *	1,2	
A	DE-A-24 45 790 (SCHMIDT GRAPHISCHE WERKE) * figure 1 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	12 December 1994	Gino, C

CATEGORY OF CITED DOCUMENTS

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